

(Atty. Dkt.: 8966-000004/01A)

IN THE U.S. PATENT AND TRADEMARK OFFICE

Appellants: Peter Scott ANDREWS, et al.
Application No.: 10/692,351
Art Unit: 2815
Filed: October 22, 2003
Examiner: Eugene LEE
For: POWER SURFACE MOUNT LIGHT EMITTING DIE
PACKAGE
Conf. No.: 8530

MAIL STOP APPEAL BRIEF – PATENTS

August 16, 2006

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

APPELLANT'S BRIEF ON APPEAL UNDER 37 C.F.R. § 41.37

Dear Sir:

Appellants submit herewith their Brief on Appeal as required by 37 C.F.R. §41.37.

08/17/2006 SDEHROB1 00000000 10692351

01 FC:1402
02 FC:1251

500.00 OP
120.00 OP



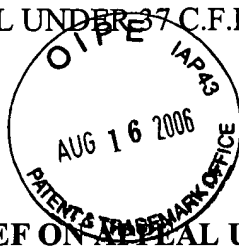
APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. §41.37

U.S. Application No.: 10/692,351

Atty. Docket: 8966-000004/01A

TABLE OF CONTENTS

	<u>Page</u>
APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 41.37	1
I. REAL PARTY IN INTEREST	1
II. RELATED APPEALS AND INTERFERENCES.....	1
III. STATUS OF CLAIMS	1
IV. STATUS OF AMENDMENTS	1
V. SUMMARY OF CLAIMED SUBJECT MATTER	2
VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL	3
VII. ARGUMENT.....	3
A. Claims 1-5, 17 and 25 are not rendered obvious under 35 U.S.C. §103(a) over Jaffe in view of Gramann et al.	3
1. Jaffe's conical light director 22 is not a reflector plate as recited in claims 1 and 25.	4
2. Rejection fails test for establishing prima facie case of obviousness.	5
3. Examiner using Impermissible Hindsight.....	7
B. 35 U.S.C. §103(a) Rejection of Claims 8, 16, 19 and 20 under Jaffe and Gramman et al.....	8
1. Claim 8.....	8
2. Claims 16, 20	8
3. Claim 19.....	9
C. 35 U.S.C. §103(a) Rejection of Claims 6 and 7 (Jaffe/Gramman et al. in view of Carey et al.	9
D. 35 U.S.C. §103(a) Rejection of Claims 9, 10, 12 and 13 (Jaffe/Gramman et al. in view of Jory et al.)	9
E. 35 U.S.C. §103(a) Rejection of Claim 14 (Jaffe/Gramman et al./Jory et al., in view of Kuwabara et al.)	10
F. 35 U.S.C. §103(a) Rejection of Claim 15 (Jaffe/Gramman et al. in view of Maekawa et al.	11
G. 35 U.S.C. §103(a) Rejection of Claim 21 (Jaffe/Gramman et al. in view of Mills et al.)	11
H. 35 U.S.C. §103(a) Rejection of Claim 22 (Jaffe/Gramman et al. in view of Butterworth et al.)	12
VIII. CONCLUSION.....	12
IX. CLAIMS APPENDIX.....	13
X. EVIDENCE AND RELATED PROCEEDINGS APPENDICES	17



APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 41.37

In support of the Notice of Appeal filed May 16, 2006, appealing the Examiner's final rejection mailed November 16, 2005 of each of the claims appearing in the attached claims appendix (Appendix IX), Appellants hereby provide the following remarks.

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is CREE, INC., as reflected in the assignment recorded at reel 014637, frame 0890.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals and interferences.

III. STATUS OF CLAIMS

Claims 1-10, 12-17 and 19-25 are pending in the application, with claims 1 and 25 being in independent form. Claims 11, 18 and 27-40 have been previously cancelled, with claim 26 being canceled in a separate amendment filed concurrently herewith under 37 C.F. R. §41.33. Each of claims 1-10, 12-17 and 19-25 remain finally rejected and are being appealed.

IV. STATUS OF AMENDMENTS

An Amendment after filing a Notice of Appeal under 37 C.F. R. §41.33 is being filed concurrently herewith in a separate paper, for the sole purpose of canceling claim 26. An amendment after final filed March 16, 2006, containing only an amendment to cancel claim 26, was not entered by the Examiner, as indicated in the Advisory Action mailed April 4, 2006. As Appellants' presume that this Amendment will be entered by the Examiner for purposes of

Appeal (since the amendment is made to reduce issues at Appeal), the Claims Appendix reflects remaining claims 1-10, 12-17 and 19-25 of the Amendment under 37 C.F. R. §41.33.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Example embodiments are directed to a light emitting die package which includes an insulating layer provided between a top heat sink or reflector plate and a bottom heat sink or substrate. Referring to FIG. 5 in one embodiment, a light emitting die package 10a includes a heat sink (substrate 20a, a top heat sink) reflector plate 40a, an insulating layer of plate 30a and the lens 50.) As shown in FIGs. 5 and 6a, the substrate 20a includes flanges 31 which define latch spaces 33 for reception of legs of the reflector plate 40a, thereby mechanically engaging the reflector plate 40a with the substrate 20a.

An example, the die package may be coupled to an external heat sink 70, which may be a printed circuit board (PCB) which draws heat from the die package, as shown in FIG. 4. In another embodiment, the lens may be cushioned by an encapsulation material 46 and also may be defined by a shallow trough 52 which may be filled with optical chemicals, i.e., phosphorous, light diffusants, center frequency shifting material, etc.¹ As best shown in FIG. 3, in an embodiment be reflective plate 40 includes a ledge 44 for supporting the lens 50, it also shows the LED assembly 60 encapsulated within the die package 10 using the encapsulation material 46.

Figure 7a-7c illustrate another embodiment including an insulation layer 48 provided between conductive elements (traces 22 and 24 and the substrate 20b). As shown in FIG. 7b for example, the insulating film 48 is formed on a first layer 51a of a substrate 20b. Additionally, the substrate 20b may include on an underside thereof repair of bond pads 34 and 38 in a thermal contact pad 36.

In another example as illustrated in 7c, conductive traces 47a and 47b are formed in via holes 45a and 45b to connect the traces 22 and 24 to respective solder pads 34, 38. In a further example as shown in FIG. 9, the conductive traces 22 and 24 extend down the side walls of the

¹ Appellants' specification, ¶ 54.

substrate 20b to contact bond pads 34 and 38. Such a configuration enables the package to be mounted directly onto a PCB without the use of the leads or via holes.²

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claims 1-5, 8, 16, 17, 19, 20, 25 and 26 are unpatentable under 35 U.S.C. §103(a) over Jaffe (U.S. Patent No. 3,760,237) in view of Gramann et al. (U.S. Patent No. 5,907,151).

B. Whether claims 6 and 7 are unpatentable under 35 U.S.C. §103(a) over Jaffe and Gramman et al., in view of Carey et al. (U.S. Patent No. 6,274,924).

C. Whether claims 9, 10, 12 and 13 are unpatentable under 35 U.S.C. §103(a) over Jaffe and Gramman et al., in view of Jory et al. (U.S. Patent No. 6,501,103).

D. Whether claim 14 is unpatentable under 35 U.S.C. §103(a) over Jaffe, Gramman et al. and Jory et al., in view of Kuwabara et al. (U.S. Patent No. 6,124,635).

E. Whether claim 15 is unpatentable under 35 U.S.C. §103(a) over Jaffe and Gramman et al., in view of Maekawa et al. (U.S. Patent No. 6,281,435).

F. Whether claim 21 is unpatentable under 35 U.S.C. §103(a) over Jaffe and Gramman et al., in view of Mills et al. (U.S. Patent No. 6,525,386).

G. Whether claim 22 stands is unpatentable under 35 U.S.C. §103(a) over Jaffe and Gramman et al., in view of Butterworth et al. (U.S. Patent No. 5,847,507).

² Appellants' specification, ¶ 75.

VII. ARGUMENT

A. Claims 1-5, 17 and 25 are not rendered obvious under 35 U.S.C. §103(a) over Jaffe in view of Gramann et al.³

1. Jaffe's conical light director 22 is not a reflector plate as recited in claims 1 and 25.

Claims 1 and 25 recite, inter alia, a light emitting die package, comprising, at least . . . “a reflector plate coupled to said substrate and substantially surrounding the mounting pad, said reflector plate defining a reflection surface”. The Examiner’s position is that the conical light director 22 shown in FIG. 3 of Jaffe is a reflector plate. Appellants submit that upon review of the detailed description in both Jaffe and the present invention, coupled with the ordinary plain meaning of the term “plate”, that the conical light director 22 in Jaffe is not a plate.

Webster’s II New College Dictionary⁴ defines a plate as the following: 1. A flat, smooth, relatively thin, rigid body of uniform thickness. Other definitions include “a sheet of rolled, hammered or cast metal, or a thin plated coat or layer of metal”. Thus, the dictionary construction of plate appears to be a rigid body that has a relatively flat or uniform thickness, and which may be made of metal.

Appellants’ FIGS. 1B, 3 and 5 illustrates reflector plates 40, 40a. For example, in FIG. 5, a die package 10a includes a bottom heat sink (substrate) 20a, a top heat sink (reflector plate) 40a, and a lens 50. An insulating layer 30a of insulating material may be used to insulate reflector plate 40a from substrate 20a. The reflector plates 40, 40a are shown as having a generally uniform thickness, generally flat, with an aperture there through which surrounds an LED assembly on a substrate 20 and receives lens 50. The reflector plates 40, 40a are referred to as “top heat sinks” throughout the specification, and are described as “made from material having high thermal conductivity”⁵ such as a metal (aluminum, copper). The reflector plate 40 or 40a is designed to absorb heat emitted from LED assembly 60; additionally, the reflector plate 40 may have an optical reflective surface 42. Accordingly, the reflector plates 40, 40a shown in

³ Dependent claims 8, 16, 19 and 20 are argued as allowable for additional, separate reasons, it being understood that these claims are also allowable at least for the reasons set forth in this Brief regarding independent claim 1.

⁴ Webster’s II New College Dictionary, Copr. 2001, Houghton Mifflin Co., p. 844.

⁵ Appellants’ Specification, paragraph [0051].

FIGS. 1B, 3 and 5 are generally rigid bodies that have a relatively flat or uniform thickness, and can be made of metal or from a material having high thermal conductivity.

The Examiner has only found a structure in Jaffe which arguably may be an object having a reflective surface, but which is clearly not a plate. As described in Jaffe, the light director is conical, i.e., of or shaped like a cone. As shown in Jaffe's FIG. 3, and described at col. 2, line 57 to col. 3, line 2, a lens cap 21 is placed in an inverted position over a diode 12 and header 11 and provided with a given amount of viscous material 22 which is deformable by gravity and subsequently cures with time and/or heating. The material 22 should be transmissive for the light (visible or infrared) emitted by the diode 12. A suitable viscous material 22 is a viscous plastic monomer which subsequently cures by polymerizing and thus becomes a solid, such as RTV silicone rubber.⁶

During the downward deformation of the viscous material 22, . . . heating or cooling may be applied . . . to cause the viscous material 22 to form an inverted conical cross-sectional shape as shown in FIG. 3 . . . Being resilient after fully cured, the plastic monomer 22 retains its conical shape and also "gives" with any jarring or slight relative movement between the diode 12 and lens cap 21 . . .⁷

The Examiner's argument in the Advisory Action mailed April 4, 2006 is that the conical light director, as it can reflect light, is a type of reflector plate. However, the Examiner focuses only on the reflector aspect in Jaffe's light director 22, but does not actually provide a teaching of a plate, as defined by its plain meaning, as recited in the claims, and as described in Appellant's detailed description. A structure shown and described in Jaffe only as a conically shaped object could be understood as a reflector due to its reflective properties, but cannot therefore be construed by the Examiner as a plate simply because it has the propensity to reflect light. Accordingly, claims 1 and 25 (and claims 2-5 and 17 dependent on claim 1) are allowable at least for the reason that no reflector plate is taught in Jaffe, alone, or in combination with Gramman et al. A conical object is not a plate.

⁶ Jaffe, col. 2, line 57 to col. 3, line 2.

⁷ Jaffe, col. 3, lines

2. Rejection fails test for establishing prima facie case of obviousness.

Appellants direct the Examiner's attention to two cases decided by the Court of Appeals for the Federal Circuit (CAFC), In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed.Cir. 1999) and In re Kotzab, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed.Cir. 2000). Both of these cases set forth very rigorous requirements for establishing a prima facie case of obviousness under 35 U.S.C. §103(a). To establish obviousness based on a combination of elements disclosed in the prior art, there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant. The motivation suggestion or teaching may come explicitly from one of the following:

- (a) the statements in the prior art (patents themselves)
- (b) the knowledge of one of ordinary skill art, or in some cases,
- (c) the nature of the problem to be solved.

See Dembiczak 50 USPQ at 1614 (Fed.Cir. 1999). In Kotzab, the CAFC held that even though various elements of the claimed invention were present (in two separate embodiments of the same prior art reference), there was no motivation to combine the elements from the separate embodiments, based on the teachings in the prior art.

In order to establish a prima facie case of obviousness under 35 U.S.C. §103(a), the Examiner must provide particular findings as to why the two pieces of prior art are combinable. See Dembiczak 50 USPQ2d at 1617. Broad conclusory statements standing alone are not "evidence".

In order to provide motivation for combining Gramann et al. with Jaffe to reject claim 1 (and presumably claim 25) on page 3 of the Office Action of November 16, 2005, the Examiner asserts that such motivation would be "in order to provide connections to the substrate".

Appellants have read the entirety of Gramann et al. and Jaffe and do not see how reading these references one of ordinary skill in art would think to combine the sole FIGURE of Gramann et al., FIG. 1 with Jaffe's FIG. 3). For example, the Gramann et al. configuration requires the substrate (carrier plate 7) to have a trapezoidal recess 8 below the substrate surface to provide a mounting surface for some radiation-emitting and/or receiving body 1. Nothing surrounds the body 1 in Gramann et al. Gramann et al. provide no other teaching or interpretation of its substrate 7 other than the recessed embodiment shown in the FIGURE.

Jaffe, on the other hand has a completely flat planar substrate 11 surface on which sits a viscous material 22 that envelopes diode 12. As the structural configuration of Jaffe and Grammann et al. are completely different, Appellants do not see how or where the skilled artisan would be motivated to modify Jaffe's structure with that taught in Gramman et al. "in order to provide connections to the substrate".

Accordingly, the alleged motivation provided by the examiner is not a statement in the prior art (patents themselves-none given), or based on knowledge of one of ordinary skill art (none given), or in some cases, based on the nature of the problem to be solved. There is no stated problem to be solved in Jaffe that would be rectified by Gramman et al. structure. Accordingly, Appellants respectfully submit that independent claims 1 and 25 (and claims 2-5 and 17 dependent on claim 1) are additionally allowable at least because the Examiner has failed to establish a proper prima facie case of obviousness under 35 U.S.C. 103(a), in view of Dembiczak and Kotzab.

3. Examiner using Impermissible Hindsight.

The Examiner is using impermissible hindsight reconstruction to reject the claims. At least for claims 1 and 25, the Examiner has used FIG. 2 of the present application as a blueprint, selected a prior art LED package (Jaffe FIG. 3) as the main structural device, and then searched other prior art for the missing elements (first and second conductive elements on an insulating film, with one of the conductive elements comprising a mounting pad for mounting an LED thereon, without identifying or discussing any specific evidence of motivation to combine, other than providing the conclusory statement, "in order to provide connections to the substrate" regarding the knowledge in the art, motivation and obviousness.

The Federal Circuit has noted that the PTO and the courts "cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention," In re Fine, 837 F.2d 1071, 1075, 5 USPQ2d 1780, 1783 (Fed. Cir. 1988), and that the best defense against hindsight-based obviousness analysis is the rigorous application of the requirement for a showing of a teaching or motivation to combine the prior art references. Combining prior art references without evidence of such a suggestion, teaching, or motivation

simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight. Dembiczak, 50 USPQ2d at 1617. Appellants respectfully submit that claims 1 and 25 (and claims 2-5 dependent on claim 1) are allowable for at least the additional reason that the Examiner has employed improper hindsight reconstruction to reject the independent claims, ostensibly by picking and choosing the features in Gramman that are missing in Jaffe, without providing any evidentiary support for the alleged motivation to combine.

B. 35 U.S.C. §103(a) Rejection of Claims 8, 16, 19 and 20 under Jaffe and Gramman et al.

Each of claims 8, 16, 19 and 20 contain features not taught or suggested by the Jaffe/Gramman et al. combination. Appellants submit that in addition to the allowability of these claims for the reasons set forth regarding independent claim 1, these claims are allowable for separate reasons.

1. **Claim 8.** Claim 8 recites "wherein said insulating film comprises a ceramic polymer film". The Examiner alleges that such would be an obvious design choice, yet none of the references of record suggest an insulating film as a ceramic polymer film. The Examiner is thus requested to provide a teaching reference of what is allegedly a well-known material in the context of an insulating material for an LED package, or to allow the claim. Claim 8 is thus separately allowable for this reason.

2. **Claims 16, 20.** Claim 16 recites "wherein said substrate comprises flanges along at least one side for mechanically engaging said reflector plate". The Examiner only addresses this feature in the Advisory Action, alleging that "the edges and cement 23 of the substrate form flanges". A review of Appellants' figures and Jaffe's FIGS. 3 and 5 show that this is not the case.

As can be seen in Appellants' FIGS. 5 and 6A, substrate 20a includes flanges 31 that provide latch spaces 33 to receive the legs 35 of the reflector plate 40a, thereby mechanically

engaging the reflector plate 40a with the substrate 20a.⁸ In Jaffe, the only means of holding the lens cap 21 and light director 22 to the non-flanged header 11 is via cement 23. There is no flange on a side of the header 11 for mechanically engaging the light director 22. Claim 16 is thus separately allowable for this reason.

As to claim 20, which recites that “said reflector plate comprises at least one leg mechanically engaging said substrate for increased thermal transfer”, no figure in either Jaffe or Gramman et al. teach or suggest a plate which includes a leg such as leg 35 in Appellants FIG. 5, for mechanically engaging the substrate 20a. Claim 20 is thus separately allowable for this reason.

3. Claim 19. Claim 19 recites “wherein said reflector plate comprises material having high thermal conductivity”. The Examiner has not addressed this claim limitation in the Final Office Action of November 16, 2005 nor in the Advisory Action of April 4, 2006. Unless the Examiner can show, with evidentiary support, that a viscous plastic monomer which subsequently cures by polymerizing to become a solid is a material having high thermal conductivity, Appellants submit that this claimed feature has not been met by the Jaffe/Gramman et al. combination.

C. 35 U.S.C. §103(a) Rejection of Claims 6 and 7 (Jaffe/Gramman et al. in view of Carey et al.

The Examiner relies on Carey for limited teachings of metal substrate materials. However, Carey fails to cure the deficiencies noted in Jaffe and Gramman et al., namely it fails to teach the reflector plate as recited in claims 1 and 25. Accordingly, claims 6 and 7 are allowable at least for the reason that these claims depend off allowable claim 1.

⁸ Appellants' specification, paragraph [0058].

D. 35 U.S.C. §103(a) Rejection of Claims 9, 10, 12 and 13 (Jaffe/Gramman et al. in view of Jory et al.)

The Examiner relies on Jory et al. for its limited teachings. However, Jory et al. fail to cure the deficiencies noted in Jaffe and Gramman et al., namely Jory et al. fails to teach the reflector plate as recited in claims 1 and 25. Accordingly, claims 9, 10, 12 and 13 are allowable at least for the reason that these claims depend off allowable claim 1.

Additionally, the Examiner has failed to provide the requisite motivation to combine Jory et al. with the Jaffe/Gramman et al. combination, alleging that the basis of motivation for via holes would be “to provide further connections” and that the basis for having an external heat sink would be “in order to dissipate” heat, which is the exact same reason as given in the present application.

Jory et al. do not teach or suggest these reasons for heat dissipation or to provide further connections, nor do either Jaffe or Gramman et al. There must be some reason, suggestion or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination. That knowledge cannot come from the applicant's invention itself. In re Oetiker, 24 USPQ2d 1443, 1446 (Fed. Cir. 1992). These claims are therefore additionally allowable for the reason that the Examiner has failed to make out a prima facie case of obviousness under 35 USC 103.

E. 35 U.S.C. §103(a) Rejection of Claim 14 (Jaffe/Gramman et al./Jory et al., in view of Kuwabara et al.)

The Examiner relies on Kuwabara et al. for its limited teachings of a substrate having a plated underside. However, Kuwabara et al. fail to cure the deficiencies noted in Jaffe, Gramman et al. and Jory et al., namely Kuwabara et al. fail to teach or suggest the reflector plate as recited in claims 1 and 25. Accordingly, claim 14 is allowable at least for the reason that it depends off of allowable claim 1.

Additionally, the Examiner has failed to provide the requisite motivation to combine Kuwabara et al. with the Jaffe/Gramman et al./Jory et al. combination, alleging that the basis of motivation for a bottom side plated with metals would be “to stabilize a bottom side with a heat sink”. ” Kuwabara et al. do not teach or suggest that reason, nor is this reason described within

Jaffe, Gramman et al. or Jory et al. Accordingly, the alleged motivation provided by the examiner is not based from a statement in the prior art, based on knowledge of one of ordinary skill art (none given), or in some cases, based on the nature of the problem to be solved. There is no stated problem to be solved in Jaffe that would be rectified by Kuwabara et al. Claim 14 is therefore additionally allowable in that the Examiner has failed to make out a prima facie case of obviousness under 35 USC 103.

F. 35 U.S.C. §103(a) Rejection of Claim 15 (Jaffe/Gramman et al. in view of Maekawa et al.

The Examiner relies on Maekawa et al. for its limited teachings of having a conductive. However, Maekawa et al. fail to cure the deficiencies noted in Jaffe and Gramman et al., namely Maekawa et al. fail to teach the reflector plate as recited in claims 1 and 25. Accordingly, claim 15 is allowable at least for the reason that this claim depends off of allowable claim 1.

G. 35 U.S.C. §103(a) Rejection of Claim 21 (Jaffe/Gramman et al. in view of Mills et al.)

The Examiner relies on Mills et al. for its limited teachings of a trough. However, Mills et al. fails to cure the deficiencies noted in Jaffe and Gramman et al., namely Mills et al. fail to teach the reflector plate as recited in claims 1 and 25. Accordingly, claim 21 is allowable at least for the reasons that it depends off of allowable claim 1.

Additionally, Appellants submit that it would make no sense to combine Mills et al.'s trough 552 with Jaffe, simply because the trough described in the present application is within the lens, whereas the trough in FIG. 5B of Mills et al. is formed outside the lens body. Hence, the skilled artisan would not be motivated to look to Mills et al. for a teaching of a lens comprising a trough adapted to receive optical chemicals, since the trough 552 forms no part of the lens body 560. Claim 21 is additionally allowable in that the Examiner has failed to make out a prima facie case of obviousness under 35 USC 103 to combine Mills with the Jaffe/Gramman et al. combination.

H. 35 U.S.C. §103(a) Rejection of Claim 22 (Jaffe/Gramman et al. in view of Butterworth et al.)

The Examiner relies on Butterworth et al. for its limited teachings of a lens having frequency shifting compounds. However, Butterworth et al. fail to cure the deficiencies noted in Jaffe and Gramman et al., namely it fails to teach the reflector plate as recited in claims 1 and 25. Accordingly, claim 22 is allowable at least for the reason that it depends off of allowable claim 1.

VIII. CONCLUSION

Appellants respectfully request the Board to reverse the Examiner's rejection of claims 1-10, 12-17 and 19-25 and allow each of these claims.

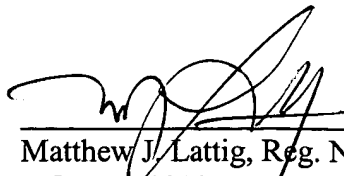
Pursuant to 37 C.F.R. § 1.17 and § 1.136(a), Appellants respectfully petition for a one (1) month extension of time for filing a response in connection with the present application, and the required fee of \$120.00 is attached.

The Commissioner is authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By:


Matthew J. Lattig, Reg. No. 45,274
P.O. Box 8910
Reston, Virginia 20195
(703) 668-8000

MJL:edt

IX. CLAIMS APPENDIX

1. A light emitting die package comprising:

a substrate comprising an electrically and thermally conductive material and having a first surface;

a thermally conductive, electrically insulating film covering at least a portion of said first surface;

a first conductive element on said insulating film, said conductive element insulated from said substrate by said insulating film;

a second conductive element on said insulating film, said second conductive element spaced apart from said first conductive element and electrically insulated from said substrate by said insulating film wherein at least one of said first and second conductive elements comprises a mounting pad for mounting a light emitting die thereon;

a reflector plate coupled to said substrate and substantially surrounding the mounting pad, said reflector plate defining a reflection surface; and

a lens substantially covering the mounting pad.

2. The light emitting die package recited in claim 1 further comprising a light emitting diode (LED) mounted on said substrate and connected to the first and second conductive elements.

3. The light emitting die package recited in claim 2 wherein the LED is encapsulated within optically clear polymer.

4. The light emitting die package recited in claim 1 wherein said first and second conductive elements comprise metal traces.

5. The light emitting die package recited in claim 1 wherein said substrate comprises a metal.

6. The light emitting die package recited in claim 5, wherein said substrate comprises a metal selected from the group consisting of copper and aluminum.

7. The light emitting die package recited in claim 5, wherein said substrate comprises a copper/aluminum alloy.

8. The light emitting die package recited in claim 1 wherein said insulating film comprises a ceramic polymer film.

9. The light emitting die package recited in claim 1, wherein said substrate comprises a second surface opposite said first surface, and further comprising at least one via hole through said substrate.

10. The light emitting die package recited in claim 9, wherein the surface of said via hole is coated with an insulating film coating.

12. The light emitting die package recited in claim 9 wherein said second surface of said substrate includes a thermally conductive insulating film on at least a portion of said second surface and wherein said package further comprises a third electrical lead on said second surface, said third electrical lead is insulated from said substrate by said thermally conductive insulating film and said third electrical lead is in electrical contact with said conductive trace through said via hole.

13. The light emitting die package recited in claim 1 further comprising an external heat sink coupled to said substrate.

14. The light emitting die package recited in claim 13 wherein said substrate has a bottom side plated with metals for coupling with said external heat sink.

15. The light emitting die package recited in claim 1 wherein at least one conductive element extends from the mounting pad to a side of said substrate.

16. The light emitting die package recited in claim 1 wherein said substrate comprises flanges along at least one side for mechanically engaging said reflector plate.

17. The light emitting die package recited in claim 1 wherein said reflector plate substantially surrounds the mounting pad.

19. The light emitting die package recited in claim 1 wherein said reflector plate comprises material having high thermal conductivity.

20. The light emitting die package recited in claim 1 wherein said reflector plate comprises at least one leg mechanically engaging said substrate for increased thermal transfer.

21. The light emitting die package recited in claim 1 wherein said lens comprises a trough adapted to receive optical chemicals.

22. The light emitting die package recited in claim 1 wherein said lens comprises frequency shifting compounds.

23. The light emitting die package recited in claim 1 wherein said lens comprises diffusant.

24. The light emitting die package recited in claim 1 wherein said lens comprises a phosphor.

25. A light emitting die package comprising:
a metal substrate having a first surface;

APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. §41.37

U.S. Application No.: 10/692,351

Atty. Docket: 8966-000004/01A

an electrically insulating film covering at least a portion of said first surface;

a first conductive trace on said insulating film, said conductive trace insulated from said substrate by said insulating film;

a mounting pad for mounting a light emitting device, said mounting pad electrically connected to said first conductive trace;

a reflector plate coupled to said substrate and substantially surrounding the mounting pad, said reflector plate defining a reflection surface; and

a lens substantially covering the mounting pad.

X. EVIDENCE AND RELATED PROCEEDINGS APPENDICES

As there are no related proceedings, copies of a decision rendered by a court or the Board for such proceedings do not exist and have not been supplied in an Appendix pursuant to 41.37(c)(1)(x).

As no evidence was submitted and relied upon in this Appeal, this Appendix contains no evidence pursuant to 37 C.F.R. §41.37(c)(1)(ix).